

Feeding Low-Quality Forage During Drought

Megan Van Emon describes options for alternative feeds for the cow herd.

This is a difficult year for livestock producers throughout Montana. The entire state is afflicted by drought, with the majority of the state designated as extreme (D3) and exceptional (D4). This has led to a lack of resources available for feeding cattle. Due to the extensive drought in the Western United States, harvested forage has been a limited commodity.

There have been several common questions I have received this year:

- How much straw can I feed?
- How much hay can be replaced by cake?
- What are safe levels of nitrates?
- What are some other alternative feeds that I can buy?
- Can I graze my unharvested cereal grain crop?
- Can I feed cattle weedy hay?
- Can I feed corn stalks?

This is a year when we need to think outside the box for feeding the cow herd. Several alternative feeds can be considered: wheat midds, dried distillers grains, and grains. There are positives and negatives to feeding these different alternatives and these should be considered when developing a ration. The quality of the feed should be considered, and the price per ton and pound of nutrient.

Straw can be fed to cows but should be limited to 50% or less of the diet. This is mainly due to the poor nutrient composition of straw. Straw should be fed with good quality hay to reduce compaction problems. For example, to meet crude protein (CP) requirements (8%) of a 1,400 pound cow during the last third of pregnancy, or gestation, a ration could consist of 40% straw (5% CP) and 60% medium quality hay (10% CP). This would meet the 8% CP requirements of the cow. However, straw should be limited to 25% during the last third of gestation due to its low quality and nutritional limits. Therefore, an additional supplement could be fed to aid in meeting crude protein requirements.

A 1,400 pound cow will consume about 2% of her body weight every day in dry matter, which equates to 28 pounds of dry matter. If we consider the 60% hay/40% straw ration further and it is limited to 75% of the total diet,





we are feeding 21 pounds of the hay/straw mix. We need to feed an additional 25% of the diet, or 7 pounds. The hay/straw mix provides 1.68 pounds of crude protein $[(8\% \div 100) \times 21 \text{ lbs}]$, which means we need to provide an additional 0.56 pounds of crude protein in the remaining 7 pounds of feed. This indicates that we need 7 pounds of feed with at least 8% crude protein to meet the 0.56 pound shortfall $(0.56 \text{ lbs} = X\%CP \times 7 \text{ lbs; solve for X})$.

We can consider multiple feeds to create an adequate ration to meet the needs of the cow herd. However, this does not account for gut fill. We can limit high-quality

feeds and meet the requirements of the cows, but gut fill is needed to ensure the cows are “full.” Even if nutrient requirements are met, cows will continue to eat until they are “full.”

It is important to consider cost per pound of nutrient, especially crude protein and total digestible nutrients (TDN), when considering feed alternatives. Feed ingredients can be directly compared to determine an economical feedstuff. However, during drought, feed options may be somewhat limited and higher costs may need to be considered. Examples in the table below may aid in calculating cost per pound of nutrient.

Special care should be taken with feeds high in nitrates because this can limit the use in cattle rations and will change based on nitrate content of the diet and water. Additionally, some weeds are nitrate accumulators, such as kochia, so care should also be taken when feeding forages that have weeds. When considering feed options for the operation, contact your local MSU Extension Agent to discuss these options and the positives and negatives of each.

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Calculated Cost of Feed Per Pound of Nutrient Content												
Column	A	B	C	D	E	F	G	H	I	J	K	L
Formula	–	–	–	–	–	–	C x D*	G x E	G x F	A ÷ G	A ÷ H	A ÷ I
	Cost	Definition of Units		Feed Test Results**			Nutrient Content Calculations			Feed Value Calculations		
Feed	\$/unit	Unit of Sale	lb/unit	DM %	TDN %	CP %	DM lb/unit	TDN lb/unit	CP lb/unit	\$/lb DM	\$/lb TDN	\$/lb CP
Alfalfa, large rounds	275	Ton	2000	87.0	55.0	19.8	1740.0	957.0	344.5	0.158	0.287	0.798
Grass/alfalfa, large rounds	250	Ton	2000	89.0	53.0	13.6	1780.0	943.4	242.1	0.140	0.265	1.033
Grass, large rounds	225	Ton	2000	88.0	52.0	8.1	1760.0	915.2	142.6	0.128	0.246	1.578
Wheat midds	130	Ton	2000	89.0	73.0	18.6	1780.0	1299.4	331.1	0.073	0.100	0.393
Dried distillers grains	190	Ton	2000	90.0	89.0	30.8	1800.0	1602.0	554.4	0.106	0.119	0.343
Com	222	Ton	2000	83.0	85.0	8.3	1660.0	1411.0	137.8	0.134	0.157	1.611
Barley grain	125	Ton	2000	90.0	84.0	12.8	1800.0	1512.0	230.4	0.069	0.083	0.543

*Use percentage as a decimal (for example, 87% DM = 0.87)
 **Feed test results must be entered on a dry matter (DM) basis